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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/500,366	06/28/2004	Massimo Maura	22106-00060-US1	7551
30678	7590	09/19/2006	EXAMINER	
CONNOLLY BOVE LODGE & HUTZ LLP			HEINRICH, SAMUEL M	
P.O. BOX 2207			ART UNIT	
WILMINGTON, DE 19899-2207			PAPER NUMBER	

1725

DATE MAILED: 09/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/500,366

Applicant(s)

MAURA ET AL.

Examiner

Samuel M. Heinrich

Art Unit

1725

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 2-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 June 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_.

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 2-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Independent claims 8 and 21 both describe "keeping said laser means pointed towards a portion of the surface that remains to be welded". This description is vague. Is "the surface" part of the weld puddle? Further description is required.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 21, 2-5, and 8-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior Art (AAPA) in view of USPN 6,143,998 to Mattes, in view of the handbook Welding Skills and Practices, and in view of the Metals Handbook Ninth Edition (Laser Beam Welding). AAPA describes (Specification Pages 1 and 2) well known joining of contacts including laser welding of a silver plate to a copper body. Mattes describes (Figure 16) laser welding a silver workpiece to a copper workpiece using spot welds along a joint edge. The section of the book Welding Skills and Practices in Chapter 7, The Flat Position, describes welding electrode position (Figures 5, 13, 16, and 22) which provides an angle for the electrode which is not zero degrees, but provides an angle of incidence of the input arc oriented along the same direction as relative motion between the arc and the joint, thereby obtaining an elongated weld. Metals Handbook Ninth Edition shows (Figure 14 at page 657) a laser which is pointed towards a work portion that has not yet been solidified.

The use of an angle of incidence of 5-20 degrees during laser welding an aluminum plate to a copper body would have been obvious at the time applicant's invention was made to a person having ordinary skill in the art because it provides a good finished weld seam shape.

As described previously, Mattes describes the use of a laser to weld a silver alloy contact surface to a copper alloy contact body. See at least Figures 12-16 and see at least the description at column 4, line 61 through column 6, line 9.

The use of a solid state laser and the beginning of the weld on the larger heat sink body would have been obvious at the time applicant's invention was made to a person having ordinary skill in the art because the solid state laser is readily available as a welding apparatus and because the heat capacity of the larger work piece is greater than the capacity of the smaller work piece and therefore requires more heat input than the smaller work piece in order to create a weld pool comprising melt from both work pieces. Varying the angle of incidence of the laser with respect to the work is a well known subject for course studies in welding and the use of a particular angle of incidence would have been obvious at the time applicant's invention was made to a person having ordinary skill in the art depending on the work piece shapes, compositions, and orientations.

AAPA describes (Specification pages 1 and 2) well known contact manufacturing processes and intended uses thereof. The instant claimed articles of manufacture would have been obvious at the time applicant's invention was made to a person having ordinary skill in the art because the joining technology for contact structure is well known as disclosed by Mattes and because the articles of manufacture are well known as disclosed by AAPA.

The orientation of the laser beam on a melt or a weld puddle meets the limitation "keeping said laser means pointed towards a portion of the surface that remains to be welded" and such orientation would have been obvious at the time applicant's invention was made to a person having ordinary skill in the art because the beam energy provides the melted weld prior to solidification.

Claims 6, 7, and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior Art (AAPA) in view of USPN 6,143,998 to Mattes, in view of the handbook Welding Skills and Practices, and in view of the Metals Handbook Ninth Edition (Laser Beam Welding) as applied to claims 21 and 2-4 above, and further in view of USPN 4,230,930 to Chang et al. The use of a flash layer of copper on a work piece is well known in the art as disclosed for example by Chang et al (DETX 7) "steel ... having a copper flash plating" and the use of a flash layer of copper on the silver work piece of Mattes would have been obvious at the time applicant's invention was made to a person having ordinary skill in the art because the flash provides extended storage life and reduces bond pre-cleaning requirements.

### ***Response to Arguments***


Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Samuel M. Heinrich whose telephone number is 571-272-1175. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, P. Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Samuel M Heinrich  
Primary Examiner  
Art Unit 1725

SMH